REMARKS

Claims 49, 51-53, 55-58, 60-63, 65-83 were pending in this application. Claim 70 has been amended to delete a claim dependency from a canceled claim. Claim 76 has been amended to correct the claim number from which claim 76 depends. No new matter has been introduced by this amendment. Claims 49, 57, 58, 73, and 74 have been amended to specify that the modification or the genetic alteration, respectively, is a deletion. Support for this amendment can be found in the specification, *e.g.*, at page 24, line 5. Claims 55, 60, 65, 75, and 79 have been canceled without prejudice. Applicants reserve the right to prosecute the subject matter of the canceled claims in one or more related continuation, continuation-in-part, or divisional applications.

No new matter has been introduced by this amendment. Claims 49, 51-53, 56-58, 61-63, and 66-74, 76-78, and 80-83 will be pending upon entry of the present amendment.

THE REJECTIONS UNDER 35 U.S.C. § 101 SHOULD BE WITH DRAWN

Claims 49, 51-53, 55-57, 60-63, 69, 71-73, 75, 77, 78, and 83 have been rejected as lacking utility under 35 U.S.C. § 101. In particular, it is argued that the viruses of the claimed compositions could carry genetic modifications that are found in native RSV, and that the claims therefore read on products of nature. Applicants respectfully disagree because: 1) the Supreme Court in *Diamond v. Chakrabarty*, 447 U.S. 303, 206 USPQ 193 (1980), held that microorganisms produced by genetic engineering are not excluded from patent protection by 35 U.S.C. 101." M.P.E.P. § 2105; and 2) the claims are directed to vaccines and immunogenic compositions.

1) The recombinant attenuated viruses that are components of the claimed vaccines and immunogenic compositions are generated by recombinant DNA technology. In particular, these viruses are generated using the reverse genetics approach that is taught in the present application. Since these viruses are generated by "human intervention," they are not excluded from patent protection under 35 U.S.C. 101. See M.P.E.P. § 2105.

2) The claims are directed to vaccines and immunogenic compositions. These compositions comprise a pharmaceutically acceptable carrier in addition to the virus. Such vaccines and immunogenic compositions are not products of nature. Even assuming *arguendo* that they were products of nature, which they are not, they would still not be excluded from patent protection because they were generated by "human intervention." See M.P.E.P. § 2105.

THE REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH, SHOULD BE WITHDRAWN

Claim 76 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the claim has been rejected for reciting a claim-dependency from a claim that is not present in the Listing of Claims. In response, the claim dependency has been amended. Accordingly, the rejection of claim 76 under 35 U.S.C. § 112, second paragraph, should be withdrawn.

THE REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH, BASED ON LACK OF ENABLEMENT SHOULD BE WITH DRAWN

Claims 49-53, 55, 56, 70, 71, 73-83 are rejected under 35 U.S.C. § 112, first paragraph, because the specification allegedly fails to provide sufficient enablement for the claimed compositions. Claims 49, 51-53, 55-58, 60-63, 65 to 83 are rejected under 35 U.S.C.

§ 112, first paragraph, because the specification allegedly fails to provide sufficient enabling guidance for the generation of attenuated RSV. In view of the breadth of the claims and the lack of predictability in the art, the Examiner contends, the pending claims lack enabling support in the specification. In particular, the issues raised in the rejection relate to the following aspects of the application: 1) the guidance for preparing recombinant attenuated RSV; 2) the guidance for preparing vaccines comprising recombinant attenuated RSV; 3) the guidance for preparing immunogenic compositions comprising recombinant attenuated RSV; and 4) the guidance for preparing pharmaceutical compositions comprising recombinant attenuated RSV.

Applicants assert that the specification discloses methods for making recombinant RSV. The specification further teaches how to genetically modify the genomes of these viruses. Routine assays that can be used by the skilled artisan to demonstrate the attenuation of the resulting viruses and their suitability for formulation in vaccines, immunogenic compositions, and pharmaceutical compositions are also disclosed. Because any experimentation that may be needed to obtain the claimed compositions is merely routine, the claims are enabled.

Applicants also point out that the claims have been amended to recite that the genetic alteration or modification, respectively, is a deletion. The variety of modifications that were previously recited in the claims has thus been reduced to a single form of genetic modifications. Accordingly, the only guidance that is required for making and using the claimed compositions relates to the introduction of deletions into the viral genome and the use of the resulting viruses.

In support of their arguments, Applicants submit concurrently herewith a copy of a Declaration of Richard R. Spaete under 37 C.F.R. § 1.132 (the "Spaete Declaration"). The Spaete Declaration has previously been submitted in connection with related patent application no. 09/724,388 (the "'388 Application"). The '388 Application and the present application are related to each other as follows. The '388 Application is a divisional of U.S. application serial no. 09/161,122 (the "'122 Application"). The present application is a continuation-in-part of U.S. application serial no. 09/368,076, which is a continuation-in-part of the '122 Application. The '122 Application is incorporated by reference into the present application. Since no new matter was added when the '388 Application was filed as a divisional application of the '122 Application, the entire disclosure of the '388 Application is also part of the present application. Thus, the arguments in the Spaete Declaration, including

the arguments that are based on the disclosure of the '388 Application, are equally applicable in the present case. A copy of the specification of the '388 Application is enclosed for the Examiner's convenience.

The facts and arguments set forth in the Spaete Declaration apply in full force to the present application. The Spaete Declaration addresses in particular the following issues:

> "whether, in the mid- to late 1990s, a molecular virologist, following the teachings and guidance set out in the '388 application, would, using ordinary skill, be able to (a) engineer mutant infectious, replication competent viruses belonging to the paramyxovirus family, in particular, Respiratory Syncytial Virus ("RSV"); and (b) generate vaccine strains of these viruses.

Spaete Declaration, at ¶3. It is noted that the present claims recite that the viruses are attenuated. However, attenuation of viruses is addressed in the Spaete Declaration in the context of characterization of mutant viruses and their suitability as vaccines. See Spaete Declaration, *e.g.*, at ¶¶15 to 19 and 21 to 23.

THE CLAIMED VACCINES ARE ENABLED

It is respectfully submitted that the standard applied by the USPTO for enablement of the claimed vaccine compositions is not one that a person skilled in the art would apply. As explained by Dr. Spaete (see Spaete Decl. ¶ 4), RSV causes lower respiratory disease in pediatric and aged patients. The immunity induced by natural infection with RSV does not necessarily prevent re-infection – seasonal re-infection is a hallmark of RSV disease. As a result, the goal of an RSV vaccine is to ameliorate disease symptoms in these patients by reducing viral titer in the infected subject. (see Spaete Decl., at ¶ 4). This is the standard applied to a number of vaccines. For example, influenza vaccines, which are produced annually, do not always completely prevent infection; nevertheless, in the industry, these compositions are still referred to as vaccines. Thus, applicants respectfully submit that the claimed invention meets the real-world standard.

The delay in development of a commercial anti-RSV vaccine is not due to any failure of the technology described and claimed in the '388 application and, therefore, does not factor into an analysis of enablement of the claims. In his declaration, Dr. Spaete explains why the development of RSV vaccines was delayed and how the technology described in the '388 application overcame the problems associated with the traditional strategies for RSV vaccine development (see Spaete Decl., at ¶¶ 5 and 11). In particular, Dr. Spaete clarified that the tragic outcome of an early clinical trial conducted in the 1960s with formalin-

inactivated RSV vaccines had slowed the development of RSV vaccines for decades (see Spaete Decl., at ¶ 5). In this trial, seronegative infants who were vaccinated with the formalin-inactivated vaccine went on to develop vaccine-enhanced disease during subsequent re-infection, and two infants died.

The situation changed, however, in the mid-1980s with the development of the cotton rat model for testing RSV vaccine candidates (see Spaete Decl. ¶ 6). The cotton rat models the vaccine-enhanced human disease observed with the formalin-inactivated vaccine. Indeed, the vaccine-enhanced disease observed with the formalin-inactivated vaccine human trial was reproduced in the cotton rat. As a result, the cotton rat model became the primary animal model for testing RSV vaccine safety (see Spaete Decl., at ¶ 6). Other animal model systems were developed to test attenuation and activity of vaccine candidates (see Spaete Decl., at ¶ 7). The relative order of attenuation of different RSV mutants in these animal models is predictive of the relative order of attenuation of these RSV mutants in humans (see Spaete Decl., at ¶ 7). On the basis of their predictive value, these animal systems were (and still are) routinely used to select vaccine candidates suitable for clinical trials (see Spaete Decl., at ¶¶ 8 and 9). Indeed, results of clinical trials in human subjects showed that certain of the live attenuated mutant viruses tested met the criteria for an RSV vaccine (see Spaete Decl., at ¶ 9). Thus, animal models for human RSV disease exist, and are used routinely for evaluating vaccines.

> Although the live attenuated mutant viruses tested met the criteria for vaccines, their development as commercial products was hampered because these viruses were generated by random mutagenesis – prior to the invention, they could not be generated from plasmid DNA (see Spaete Decl., at ¶ 10). The inability to rationally combine mutations and to stabilize mutations to reduce reversion rate was a problem. The advent of the technology disclosed in the present application solved this shortcoming of the prior art viruses and methods for generating recombinant viruses. The present application finally provided recombinant paramyxoviruses that could be generated from plasmid DNA, thus making paramyxoviruses amenable to the benefits of recombinant DNA technology, such as site specific mutagenesis. Thus, for the first time, mutations could be engineered into the viral genome for the rational design of vaccines. Mutations known to be attenuated in human subjects could be built into the virus, accompanied by additional mutations that prevent reversion of the attenuated phenotype to wild type (see Spaete Decl., at ¶ 11).

The present application enables the design and production of infectious, replication competent viruses, including vaccine strains as set forth below.

THE INSTANT SPECIFICATION PROVIDES AMPLE GUIDANCE TO THE SKILLED ARTISAN FOR MAKING AND USING VIRUSES FOR THE CLAIMED COMPOSITIONS

Guidance for the introduction of deletions into the viral genome can be found throughout the specification. At p. 16, *ll.* 20-29, it is described that viral accessory gene(s) can be deleted singly or in combination. The workability of this approach is demonstrated by working examples (see, *e.g.*, Section 10, beginning at p. 63; Section 11, beginning at p. 66). The attenuating effects of these deletions is demonstrated in Table 3, p. 74; Table 4, p. 75; Table 5, p. 77; Table 6, p. 80; Table 7, p. 80 to 81; Table 8, p. 83; Table 9 and Table 10, p. 86; Table 11, p. 88; Table 12, p. 91; Table 13, p. 92; Table 14, p. 94; Table 15, p. 96; and Table 16, p. 98. Truncations of viral proteins are disclosed in the specification, *e.g.*, in Example 12.2, beginning at p. 103. Additionally, the specification teaches at p. 23, *l.* 10 to p. 26, *l.* 25, that a viral open reading frame may be eliminated and that deletions may be introduced into the viral leader and trailer sequence of the viral genome.

The present application discloses different strategies to genetically modify recombinant RSV to obtain infectious, replication competent viruses that are suitable for the claimed compositions. Expression levels of viral genes can be altered by "gene shuffling"[1] or changes to the intergenic regions of the viral genome (see Spaete Decl., at ¶ 12). This "gene shuffling" approach is an example of how the specification not only provides guidance for how to modify the viral genome but also teaches the effect such a modification will have; due to the 3' to 5' transcriptional gradient, translocation of a viral gene to a more 3' location will increase and to a more 5' location will decrease expression of the translocated gene (see Spaete Decl., at ¶ 12).

The present application further teaches which genes of the viral genome can be targeted by genetic modifications, such as insertions, deletions, and substitutions (see Spaete Decl., at ¶ 13). The effects of these modifications on the modified virus are also taught in the specification (see Spaete Decl., at ¶ 13). In addition, the application discloses different strategies for the modification of viral proteins (see Spaete Decl., at ¶ 14). These strategies include (i) the removal of charges from a viral protein to affect the protein's function without grossly altering its structure, and (ii) cysteine scanning mutagenesis to alter the tertiary

[1] It is noted that the translocation of a viral open reading frame involves its deletion and insertion into a different genomic position. Thus, the resulting virus comprises a deletion.

structure of a viral protein (see Spaete Decl., at ¶ 14). Recombinant RSV in which charges had been removed from the L protein were indeed rescued and shown to be infectious and replication competent. Like the substitutions used in the working examples to remove charges from the L protein, replication competent paramyxoviruses can be constructed with deletions of amino acids from the L protein (see Spaete Decl., at ¶ 20).

The present application further discloses that routine assays can be used to evaluate the impact of the genetic modifications on the virus. Such assays can be performed to assess the function of individual mutated viral proteins using a minigenome replication system or the function of the assembled viral mutant (see Spaete Decl., at ¶ 15). The skilled artisan was prepared to use such routine experimentation to identify viral mutants that are infectious and replication competent, or, for purposes of vaccine development, attenuated (see Spaete Decl., at ¶ 22).

The present application does not stop at providing guidance with respect to the modifications that can be introduced into recombinant paramyxoviruses to obtain infectious, replication competent viruses; the present application also provides numerous working examples to demonstrate that the guidance taught can indeed be realized to generate infectious, replication competent virus (see Spaete Decl., at ¶¶ 16, 17, 18, and 19). These working examples include deletions of entire open reading frames (see Spaete Decl., at ¶¶ 17 and 18). Some of these viral mutants have since also been shown to be attenuated indicating that these viral mutants are suitable as vaccines (see Spaete Decl., at ¶¶ 21 and 23). Further, applicants' RSV mutants are active in the very same animal models that were used to select vaccines for clinical trials (see Spaete Decl., at ¶¶ 17 and 18).

For all the foregoing reasons the claims are enabled. The Spaete Declaration provides factual support that the claimed viruses and vaccines are enabled. In the event the examiner disagrees, and to the extent that any rejection is based on facts within his personal knowledge, applicants request that the examiner provide an affidavit pursuant to the provisions of 37 C.F.R. 1.104(d)(2).

MISCELLANEOUS

The Office Action states that "the method described merely permit those in the art to run numerous trials required to identify such viruses." Applicants provided, however, for the first time methods for generating such viruses. Only the advent of the present invention made non-segmented negative-stranded RNA viruses, such as RSV, accessible to recombinant

DNA technology in order to rationally design their genomes. This breakthrough allows the skilled artisan to make such viruses, which can then be tested using routine experimentation to identify viruses suitable for the claimed compositions.

The Office Action further states that the facts of *In re Wands*, 858 F.2d 731 (Fed. Cir. 1988) are different from the present situation because in *Wands* a single experiment with no variable factors was repeated and an operable embodiment resulted in each instance. Applicants repeat that the situation in *Wands* is analogous to the present situation for the following reasons. In *Wands*, antibodies that were required to perform the claimed immunoassays were held to be enabled even though only a small percentage of hybridomas were proved to fall within the claims. *Id.* at 739. In *Wands* routine assays could be used to identify the suitable hybridomas. Similarly, in the present situation, routine assays can be used to identify among the genetically modified recombinant viruses generated by the method of the invention those that are suitable for the claimed compositions. In contrast to *Wands*, however, where hybridomas were generated randomly, the present specification even provides guidance for the rational design of modifications that affect different aspects of the recombinant virus (see Spaete Decl., at ¶¶ 12, 13, and 14).

In *Wands*, each hybridoma is one embodiment; analogously, in the present situation, each recombinant virus is one embodiment. To identify suitable hybridomas, hundreds of candidate hybridomas could be screened in parallel. However, if one envisions that each and every candidate hybridoma, *i.e.*, each embodiment, would be screened sequentially, it would be apparent that the skilled artisan would not obtain an operable embodiment in each instance. Whether or not the identification is done by parallel screening, high throughput screening, or individual testing goes merely to the quantity of experimentation because the underlying assay is the same routine test. Since "a considerable amount of experimentation is permissible, if it is merely routine" (*Id.* at 737), the actual logistics of the experimentation is irrelevant to the inquiry under 35 U.S.C. § 112—the skill required for conducting the underlying assay is determinative. Just as in *Wands*, the assay for testing whether a recombinant virus is attenuated is merely routine as discussed before. Analagously to *Wands*, a plurality of recombinant viruses with different mutations could be generated using the methods disclosed in the specification (analogous to immunizing an animal with an immunogen and obtaining multiple hybridomas) and all mutant viruses could then be tested using routine technology in parallel (analagous to testing the different hybridomas). Each

single experiment would then yield attenuated recombinant viruses. See for example Section 9.3.2 at p. 62 where it is discussed that several of the L gene mutants were attenuated.

THE REJECTION UNDER 35 U.S.C. § 112 BASED ON LACK OF WRITTEN DESCRIPTION SHOULD BE WITHDRAWN

Claims 49, 51-53, 55-58, 60-63, and 65-83 are rejected under 35 U.S.C. 112, first paragraph, for allegedly failing to comply with the written description requirement.

Applicants respectfully disagree as set forth in detail below.

THE LEGAL STANDARD

The test for sufficiency of written description is whether the disclosure of the application 'reasonably conveys to the artisan that the inventor had possession' of the claimed subject matter. *In re Kaslow*, 707 F.2d 1366, 1375, 217 U.S.P.Q. (BNA) 1089, 1096 (Fed. Cir. 1983); accord *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563; *see also*, *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575, 227 U.S.P.Q. (BNA) 177, 179 (Fed. Cir. 1985). The Court of Appeals for the Federal Circuit has repeatedly considered the written description requirement and consistently found that exacting detail is not necessary to meet the requirement:

If a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, even if [not] every nuance of the claims is explicitly described in the specification, the adequate written description requirement is met. *In re Alton*, 76 F.3d 1168, 37 USPQ2d 1578 (Fed. Cir. 1996).

The criteria for determining sufficiency of written description set forth in Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112 ¶ 1, "Written Description Requirement" ("the Guidelines") (published in the January 5, 2001 Federal Register at Volume 66, Number 4, p. 1099-1111), specifies that:

The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice (see (1)(a) above), reduction to drawings (see (1) (b) above), or by disclosure of relevant, identifying characteristics, *i.e.*, structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the

applicant was in possession of the claimed genus (see (1)(c), above). *Id.* at p. 1106, column 3, *l.* 13-29.

Where the specification discloses any relevant identifying characteristics, *i.e.*, physical, chemical and/or functional characteristics sufficient to allow a skilled artisan to recognize the applicant was in possession of the claimed invention, a rejection for lack of written description under Section 112, first paragraph, is misplaced. *Id.*

Furthermore, in accordance with the Guidelines, what is conventional or well known to one of skill in the art need not be disclosed in detail (*Id.* at p. 1105, column 3, *ll.* 39-41), and, where the level of knowledge and skill in the art is high, a written description question should not be raised. *Id.* at p. 1106, column 1, *ll.* 34-36. See also *Capon v. Eshhar*, 418 F.3d 1349, at 1357 (Fed. Cir. 2005). See also *Invitrogen v. Clontech*, 429 F.3d 1052 (Fed. Cir. 2005).

THE INSTANT SPECIFICATION PROVIDES SUFFICIENT WRITTEN DESCRIPTION FOR THE CLAIMS

The application discloses relevant, identifying characteristics for the claimed compositions. The application discloses that the viruses of the invention are attenuated through the introduction of mutations into the viral genome. The correlation between structure and function can be found in the specification and in the art. In addition, a number of actual working examples is provided. Thus, written description support is provided not only in the form of a correlation between structure and function but also in the form of working examples.

The invention is directed to the generation and rational genetic manipulation of RSV particles. The genomic sequence of RSV, *i.e.*, its structure, was known to the skilled artisan. Similarly, structure function analyses of individual genes of non-segmented, negative-stranded RNA viruses were also available to the skilled artisan. See, *e.g.*, Parks, 1994, J Virol 68(8): 4862-4872. Thus, the skilled artisan would know from these analyses that the alterations that were known to alter the function of an individual gene, could be introduced into the viral genome to generate a virus with similarly altered function. This concept is disclosed at p. 26, *ll.* 6-25. See, in particular, p. 26, *ll.* 23-25, where it is taught that the viral genome can be altered at positions associated with temperature sensitivity. This approach is further illustrated in example 9, beginning at page 57 of the specification. Specific mutations are first tested for their effect on the catalytic activity of the L protein. Subsequently, suitable

mutations are introduced into the viral genome. Further, it was know in the art, as it is disclosed in the specification, that certain genes are essential for virus replication, transcription, or infectivity whereas others are dispensable. See, *e.g.*, page 3, *ll.* 7-15.

In *Invitrogen*, the Federal Circuit found claims directed to modified reverse transcriptase with substantially reduced RNase H activity met the written description requirement. 429 F.3d at 1072. The court based its decision on the fact that the correlation between the RNase H activity of reverse transcriptase (function) and the reverse transcriptase gene (structure) was sufficiently known. *Id.* In analogy to *Invitrogen*, the present claims meet the written description requirement because there was a known correlation between the structure and function of individual genes of non-segmented negative stranded RNA viruses.

In *University of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 929 (Fed. Cir. 2004), the Court affirmed the trial court's grant of defendant's motion for summary judgment based on invalidity for lack of written description because the patent-in-suit did "not provide any guidance that would steer the skilled practitioner toward compounds that can be used to carry out the claimed methods . . . and has not provided evidence that any such compounds were otherwise within the knowledge of a person of ordinary skill in the art at the relevant time." Because as discussed above Applicants have provided such guidance and because mutations that would modify the activity of individual proteins were known such that their effect on the virus could be predicted, *University of Rochester* is inapplicable to the present situation.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. 112, first paragraph, for lack of written description be withdrawn.

The Rejection Under 35 U.S.C. § 103 Over Murphy Should Be Withdrawn

Claim 72 is rejected under 35 U.S.C. § 103 over U.S. Patent 5,993,824 to Murphy *et al.* ("Murphy"). Murphy is cited against the presently pending claim using its 102(e) date of July 15, 1997. However, the priority date of the present application of September 30, 1994 predates the 102(e) date of Murphy. It is alleged that claim 72 is not entitled to priority benefit of priority application serial no. 08/316,439 (the "'439 Priority Application") and that therefore Murphy is prior art against claim 72. Applicants respectfully disagree because claim 72 is supported in the '439 Priority Application.

In particular it is argued that the '439 Priority Application lacks support for any substitution or deletion of any RSV open reading frame. Applicants respectfully disagree. For example, at column 48, lines 8-38 of U.S. Patent 5,840,520, which issued from the '439

Priority Application, it is disclosed that deletions can be introduced into the RSV genome. Further, at column 43, lines 6-10 of U.S. Patent 5,840,520, insertion of the CAT gene between the leader and trailer sequences of RSV is described. This CAT minigenome is a deletion of the RSV open reading frames between the leader and trailer sequences and an insertion of the CAT open reading frame. Thus, the disclosure of the CAT minigenome is an illustrative example of a deletion of a viral open reading frame.

Further, at column 16, lines 58-62, of U.S. Patent 5,840,520, which issued from the '439 Priority Application, it is described that foreign gene sequences can be inserted into the viral segments of influenza by complete replacement of the viral coding region with the foreign gene sequence, *i.e.*, a substitution of a complete open reading frame. At column 14, lines 45-52, it is discussed that the principles discussed in the patent for influenza may be analogously applied for respiratory syncytial virus, an example of the paramyxoviridae.

Further, insertion of the F gene and/or the G gene of one subgroup of respiratory syncytial virus into the genome of a different subgroup of respiratory syncytial virus in place of, or in addition to, the F gene and/or the G gene of the recipient genome are described at column 47, lines 30-36 of U.S. Patent 5,840,520, which issued from the '439 Priority Application.

Thus, claim 72 is entitled to the priority date of the '439 Application and Murphy is not prior art under 35 U.S.C. § 102(e). Applicants therefore respectfully request that the rejection under 35 U.S.C. § 103 over Murphy be withdrawn.

Provisional Double Patenting

The claims have been provisionally rejected on the ground of non-statutory obviousness-type double patenting over U.S. Patent Application Nos.: 09/724,388; 10/876,113; 10/975,060; and 10/078,900. As this rejection is a provisional rejection, Applicants will not address this rejection at this time.

The Double Patenting Rejection over U.S. Patent No. 5,840,520 Should Be Withdrawn

Claims 49, 52, 55, 57, 58, 60, 63, 65, 68, 71, 73-75, 78, 79, and 83 have been rejected on the ground of non-statutory obviousness-type double patenting over U.S. Patent No. 5, 840,520 (the "'520 Patent") In particular, it is argued that these claims are obvious over claims 6 and 7 of the '520 Patent. This rejection has been based on the recitation of additions

in the present claims (see ¶22 of the Office Action). Solely to expedite the prosecution of the present application, Applicants have amended the claims. In view of the present amendment the obviousness-type double patenting rejection over the '520 Patent is moot and should be withdrawn.

CONCLUSION

Applicants respectfully request entry and consideration of the foregoing amendments and remarks. No new matter has been introduced. The claims are believed to be free of the art and patentable. Withdrawal of all the rejections and an allowance are earnestly sought.

Respectfully submitted,

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